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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/746,822 | 12/22/2000 | Mohammed N. Islam | 068069.0110 | 8908 |

7590 04/06/2005

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EXAMINER

PHAN, HANH

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2633

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,822

Applicant(s)

ISLAM ET AL.

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-13,25-28,30-33,39 and 41-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4-9,11,12,25,27,28,30-33,39,41 and 42 is/are allowed.
- 6) ☒ Claim(s) 10,13,26 and 43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed 03/04/2005.
2. The indicated allowability of claims 10, 13, 26 and 43 is withdrawn in view of the newly discovered reference(s) to Kiang et al (US Patent No. 6,449,407) and Young et al (US Patent No. 6,091,867). Rejections based on the newly cited reference(s) follow.
3. In claim 27, line 7, the phrase "the second mirror" should be changed to -- a second mirror --.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 10, 13, 26 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-Claim 10 recites the limitation "**the first MEMS device**" in line 2. There is insufficient antecedent basis for this limitation in the claim.

-Claim 13 recites the limitations "**the beam splitter**", "**the first MEMS device**" and "**the first mirror**" in lines 2 and 4. There is insufficient antecedent basis for this limitation in the claim.

-Claim 26 recites the limitation "**the input wavelength**" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiang et al (US Patent No. 6,449,407) and further in view of Young et al (US Patent No. 6,091,867).

Regarding claims 26 and 43, referring to Figure 4, Kiang discloses a wave division add/drop multiplexer, comprising:

a wavelength division demultiplexer (i.e., demultiplexer 402, Fig. 4) operable to separate an optical input signal into a plurality of wavelengths;

an array of optical add/drop multiplexers (i.e., mirrors 401, add ports 408 and drop ports 406, Fig. 4) coupled to the demultiplexer (402), at least one of the add/drop multiplexers comprising a micro-electro-optic system (MEMs) device (col. 1, lines 29-52), the MEMS device comprising:

a moveable mirror operable to change its position, the position of the moveable mirror affecting whether the input wavelength is passed through or dropped from the array (col. 6, lines 22-58); and

a wavelength division multiplexer (i.e., wavelength division multiplexer 404, Fig. 4) operable to receive a plurality of output wavelengths from the array and to multiplex at least some of the output wavelengths into an optical output signal (col. 6, lines 22-58).

Kiang differs from claims 26 and 43 in that he fails to teach an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer. However, Young in US Patent No. 6,091,867 teaches an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer (Figs. 3-6, col. 5, lines 22-43). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer as taught by Young in the system of Kiang. One of ordinary skill in the art would have been motivated to do this since Young

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suggests in column 5, lines 22-43 that using such an inner conductive layer disposed inwardly from the moveable mirror and forming a space between the moveable mirror and the inner conductive layer wherein the moveable mirror comprises an at least substantially conductive layer operable to move relative to the inner conductive layer in response to a voltage difference between the moveable mirror and the inner conductive layer have advantage of allowing the deflecting or passing an incident light beam rapidly.

Allowable Subject Matter


8. Claims 1, 2, 4-9, 11, 12, 25, 27, 28, 30-33, 39, 41 and 42 are allowed.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


**HANH PHAN
PRIMARY EXAMINER**